

FEASIBILITY STUDY

US 220

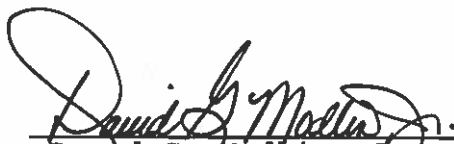
From SR 1530 (Dogwood Drive)
to 0.4-mile (0.6-km) north of SR 1530
Richmond County

FS # 76-94-008

Prepared by
Program Development Branch
Division of Highways
N. C. Department of Transportation



Mohammed B. Mustafa, P.E.
Highway Planning Engineer



David G. Modlin, Jr., Ph.D., P.E.
Head of Feasibility Studies

6/6/94
Date

US 220
From SR 1530 (Dogwood Drive)
to 0.4-mile (0.6-km) north of SR 1530
Richmond County

FS # 76-94-008

I. GENERAL DESCRIPTION

This is a feasibility study for the improvement of US 220 from the existing multi-lane section at SR 1530 (Dogwood Drive) to a point 0.4 mile (0.6 km) north. The section recommended for improvement is identified as Section 1 on Figure 2. The recommended improvements include realignment of the subject section of US 220 on a new location immediately to the east of the existing roadway. The recommended right-of-way width is 100 feet (30.5 meters). No access control is recommended. The estimated cost of this project is \$790,000 (\$230,000 for right-of-way, and \$560,000 for construction).

This study is not a detailed planning/environmental investigation. A feasibility study presents recommended typical cross sections, general alignments, and estimated cost of the improvement. The study also attempts to provide an early identification of potential environmental, permitting, or other issues which deserve consideration in the planning and construction stages.

II. NEED FOR PROJECT

This study investigates improving access between the US 220 relocation (R-2231) and the Town of Ellerbe in Richmond County. The studied portion of US 220 is classified as a principal arterial in the Statewide Functional Classification System. US 220 is a part of the Intrastate Highway System, and is a major traffic link between the coastal areas of the Carolinas and the Greensboro and Winston-Salem urban areas. As such, the studied roadway carries a high proportion of through traffic, including trucks and recreational vehicles. When completed, the relocated section of US 220 (R-2231) will assume the role of the existing US 220.

Project R-2231 proposes the construction of US 220 as a four-lane divided facility on a new location (see Figures 1 & 2), from just south of Ellerbe to Emery in Montgomery County. Project R-2231, which is scheduled in the 1994-2000 Transportation Improvement Program (T.I.P.) for construction to begin in 1996, will bypass Ellerbe. Therefore, the improvements outlined in this study would serve all US 220 traffic until the completion of project R-2231 after the year 2000, and will provide Ellerbe with improved access to the multi-lane US 220 beyond 2000.

The south terminal of this study is at the end of the multi-lane divided section of US 220, near SR 1530 (Dogwood Drive), south of Ellerbe (see Figure 2). At this location, US 220 tapers down from a four-lane roadway divided by a 60-foot (18.3-m) median, to a two-lane, 26-foot (7.9-m) pavement with 6-foot (1.8-m) usable shoulders. The posted speed limit is 55 mph. As can be seen from Figure 2, this location is just north of the south terminal of project R-2231, where a future interchange is proposed.

The north terminal of this study is located at the intersection of US 220 (South Main Street) and SR 1450 (Ledbetter Road) in Ellerbe. At this location US 220 consists of a two-lane, 34-foot (10.4-m) wide roadway with curb and gutter along the west side, and 4 to 6-foot (1.2 to 1.8-m) usable shoulders on the east side. The posted speed limit is 20 mph.

The 1.5-mile (2.4-km) portion of US 220 between the two terminals is located in rolling terrain with good horizontal, and adequate vertical alignments. The exception is a 7-degree curve at the south end of the studied roadway. All intersecting roads meet the studied roadway at-grade, and are stop sign controlled. The 0.6-mile (1-km) portion of the studied roadway within the Ellerbe town limits is with curb and gutter along its west side. The remainder (the portion south of Ellerbe) consists of a two-lane, 26-foot (7.9-m) pavement with 6-foot (1.8-m) shoulders. The posted speed limit is 55 mph. Land development is mainly pastures with rural residential south of Ellerbe, and mixed residential and commercial within the town limits. A Burlington Industries manufacturing facility is located just north of the south terminal of the study.

Estimated current average daily traffic volume (ADT) on the studied roadway is 8,300 vehicles per day (vpd). However, by the year 2014, and with the completion of project

R-2231, the ADT is expected to drop to 4,700 vpd. This drop in the projected ADT is due to the assumption that the majority of through traffic would utilize the new US 220 alignment. Based on these traffic estimates, the existing roadway is currently operating at a level-of-service (LOS) D. Once project R-2231 is completed, the existing roadway is expected to operate at a LOS C. The studied improvements are not expected to change the LOS. However, the recommended improvements would enhance the safety and efficiency of the roadway.

During the period from November, 1990, through October, 1993, a total of 16 accidents were reported to have occurred along the studied roadway. Of those accidents, 8 involved vehicles that ran off the road, and 8 that involved turning vehicles. The studied improvements would increase the safety of the roadway by improving the alignment at the south end of the roadway, and providing safer access to the Burlington Industries site.

III. RECOMMENDATIONS

The studied section of US 220 was divided into three sections (see Figure 2) for programming and prioritizing purposes. Based on projected traffic demand, and estimated costs, only Section 1 is recommended for improvement at this time. Sections 2 and 3 were evaluated, and appropriate improvements along with cost estimates were developed for programming if, and when needed.

It is recommended that a 0.4-mile (0.6-km) section of US 220 identified as Section 1 on Figure 2 be realigned. The new roadway would be located immediately to the east of the existing US 220. The realignment would begin at the south terminal of this study, and rejoin the existing US 220 at a point 1.1-miles (1.8-km) south of SR 1450 (Ledbetter Road). It is estimated that a 3-degree horizontal curve in the new alignment would provide a substantial improvement over the existing alignment. It is recommended that the realigned roadway consists of a four-lane roadway from SR 1530 to the Burlington Industries site, then taper down to a two-lane roadway where it would join the existing US 220 alignment. The recommended typical cross-sections are a 48-foot (14.6-meter) roadway, and a two-lane, 24-foot (7.3-meter) roadway with 8-foot (2.4-meter) usable shoulders, including 2-foot

(0.6-meter) paved shoulders. This would allow providing US 220 at the industrial site's entrance with a left-turn lane in the southbound direction, and a right-turn lane in the northbound direction. The recommended right-of-way width is a minimum of 100 feet (30.5 meters) without access control to accommodate a future widening of the roadway if needed.

Section 2 is a 0.5-mile (0.8-km) segment of US 220 from 0.4 mile (0.6 km) north of SR 1530, to 0.6 mile (1.0-km) south of SR 1450. Although improving this section of US 220 does not currently merit a high priority, the recommended improvement is to resurface and widen the roadway to a uniform 24-foot (7.3-meter) pavement with 8-foot (2.4-meter) usable shoulders including 2-foot (0.6-meter) paved shoulders. Improvements along this section would require minor right-of-way acquisition in some locations to accommodate the wider pavement and shoulders.

Section 3 is the 0.6-mile (1.0-km) segment of US 220 south of SR 1450 (Ledbetter Road) as shown in Figure 2. As in Section 2, Section 3 does not currently merit a high priority for improvement. However, the recommended future improvements include extending the curb and gutter along the west side of the roadway by approximately 900 feet (274 m). Additionally, new curb and gutter would be constructed along the entire east side of the Section. The recommended typical cross-section would be a two-lane, 40-foot (12.2-m) curb and gutter section with 6-foot (1.8-m) berms. This improvement would require an estimated additional 10 feet (3.0 m) of right-of-way width. This would be necessary to accommodate the new curb and gutter and berms, and to utilize all the existing pavement width within the recommended typical cross-section.

Project cost is estimated as follows:

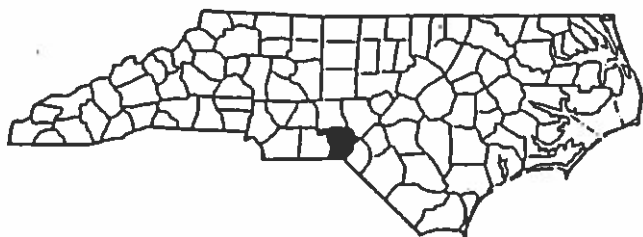
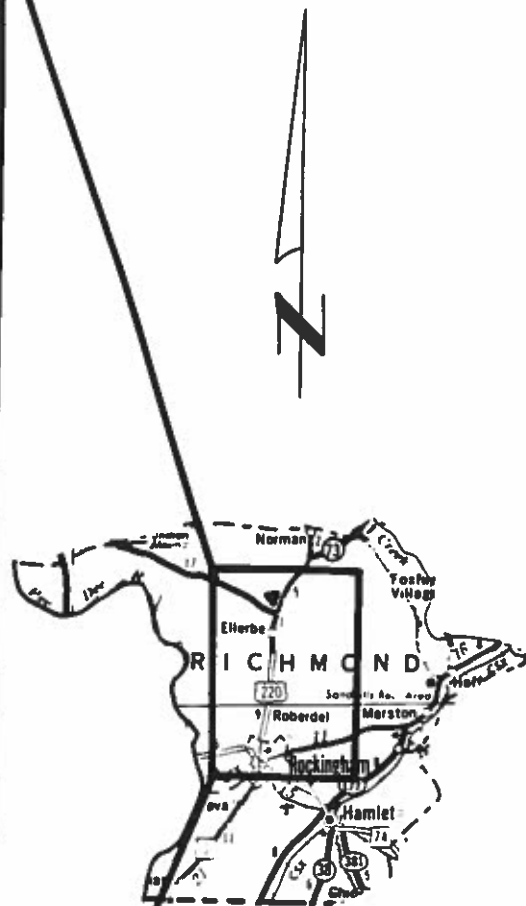
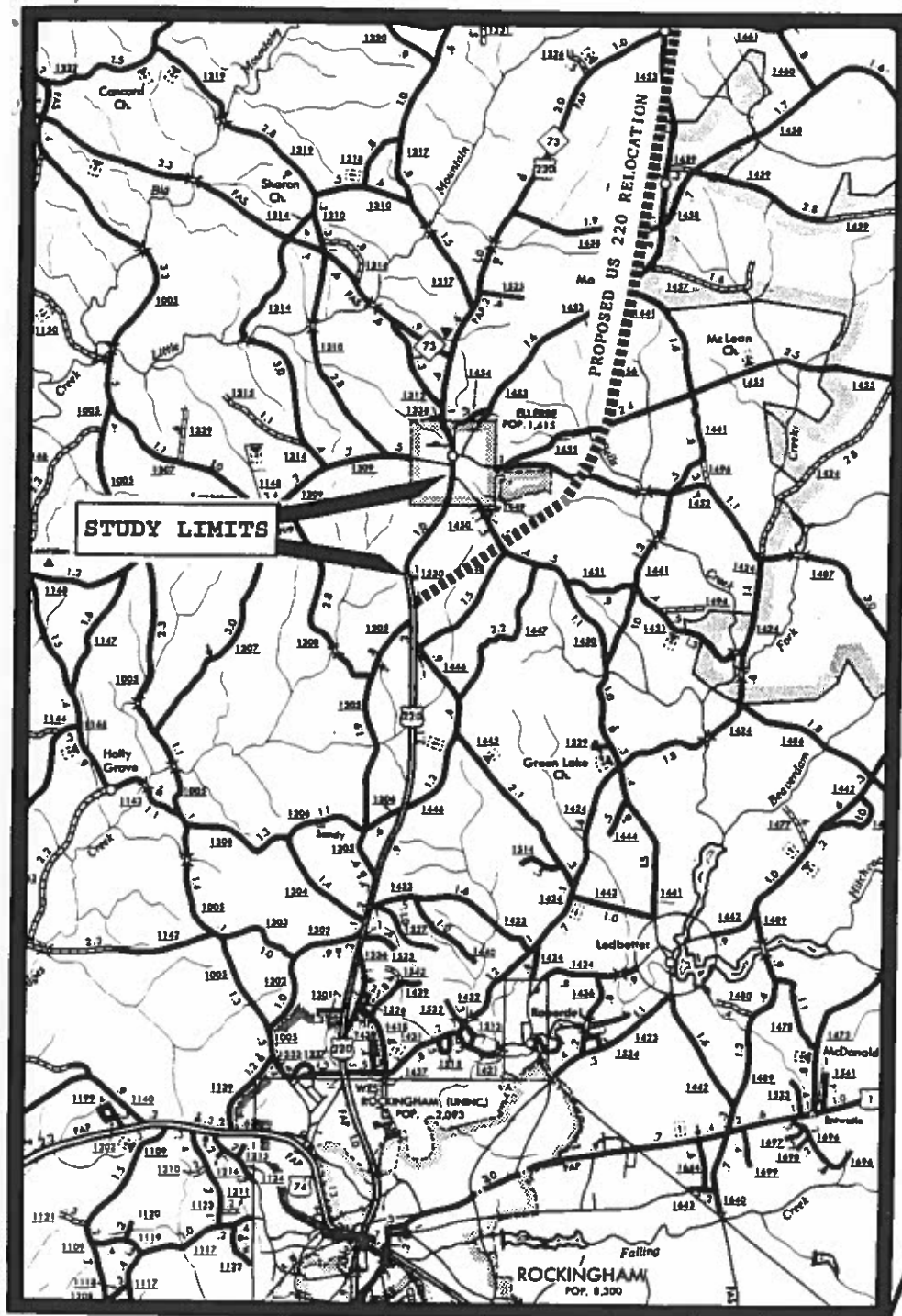
| | <u>Section 1</u> (Recommended) | <u>Section 2</u> | <u>Section 3</u> |
|--------------|-----------------------------------|------------------|------------------|
| Right-of-Way | \$ 230,000 | \$ 30,000 | \$ 280,000 |
| Construction | \$ 560,000 | \$ 150,000 | \$ 350,000 |
| Total | \$ 790,000 | \$ 180,000 | \$ 630,000 |

Moderate utility conflicts are anticipated.

IV. OTHER COMMENTS & CONCERNS

It is estimated that this project would require the relocation of 2 residences, and 1 business.

An environmental screening was not conducted for this study, a field survey identified a property that may qualify as eligible for inclusion in the National Register of Historic Places. The property is not currently listed in the State Historic Preservation Office records. The property is located on the east side of US 220, approximately 0.2 mile (0.3 km) south of the Ellerbe town limits.



| FEASIBILITY STUDIES UNIT | |
|--|----------|
| FS # 76-94-008 | |
| US 220 FROM THE PROPOSED US 220 RELOCATION SOUTH OF ELLERBE TO SR 1450 (LEDBETTER ROAD) | |
| RICHMOND COUNTY | |
| DIVISION 8 | FIGURE 1 |

